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10/692,290	10/23/2003	Anssi Ramo	944-003.182	7122

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EXAMINER

PIERRE, MYRIAM

ART UNIT	PAPER NUMBER
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2654

DATE MAILED: 09/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/692,290	Applicant(s) RAMO ET AL.	
	Examiner Myriam Pierre	Art Unit 2654	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 July 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 3-38, 40 and 41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-38, 40-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Response to Amendment***

1. Applicants arguments, filed 07/22/2005 regarding the Office Action of 02/08/2005. Applicant amends claims 1, 7, 12-13, 19, 26-27 and 31-32; cancelled claim 2 and possibly claim 12; and added new claims 33-38, 40-41. Examiner withdraws 112 rejection of claims 7, 12-13 and 22.

***Response to Arguments***

2. Applicant's arguments filed 07/22/2005 have been fully considered but they are not persuasive.

Applicant states that claim 12 is amended, yet, on page 9, the last sentence, states that claim 12 is cancelled.

Applicant argues that Gersho (154) is irrelevant to the claimed invention, however CELP-type encoding, an example of Analysis-by-Synthesis coder is parametric coding which encompasses the claimed invention of segmenting, coding and decoding of audio signals for data transmission used in wireless systems (col. 3 lines 1-15, 60-67 and col. 4 lines 1-6).

The arguments regarding the dependent claims are addressed in the claimed rejection below.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3-14, 19-38, 40-41 are rejected under 35 U.S.C. 102 (b) as being anticipated by Gersho et al. (6,311,154).

As to claim 1, Gersho et al. teach

segmenting {partitioning or classifying} the audio signal {speech} into a plurality of segments {frames} (partitioning samples of a speech signal into frames, col. 4, lines 25-27) based on the audio characteristics {classes} of the audio signal (classifying the speech signal in each from into one of a plurality of classes, col. 4, lines 25-27); and encoding the segments {frames} with different encoding settings {excitation} (encoding an excitation for the frame using one of a plurality of excitation coding...selected according to the class of the frame, col. 4, lines 30-33).

As to claim 3, Gersho et al. teach

characteristics {classes/classifying} include voicing characteristics {voice} in said segments {frames} of the audio signal {speech signal} (classifying the speech signal in each frame into classes, classes include voice frame, col. 4, lines 25-27 & 35).

As to claim 4, Gersho et al. teach

characteristics {identifying} include energy characteristics {presence of energy} in said segments {window} of the audio signals {residual signal} (identifying the location of

a window, identifying considers the presence of energy in the residual signal, col. 4, lines 65-67).

As to claim 5, Gersho et al. teach

Characteristics {positioning} include pitch characteristics {function of the pitch} in said segments {frames} of the audio signals (positioning the window at a location that is a function of a pitch of the frame, col. 4, lines 59-61).

As to claim 6, Gersho et al. teach

segmenting {partitioning} is carried out concurrently {classifying and encoding} to said encoding step {coding} (partitioning samples of speech, classifying speech signals into classes, coding a speech signal, col. 4, lines 24-25. The classifying and encoding process may be done concurrently).

As to claim 7, Gersho et al. teach segmenting is carried out before said encoding step (partitioning samples of speech, classifying speech signals into classes, coding a speech signal, col. 4, lines 24-25, thus the classifying or segmenting is done before coding).

As to claim 8, Gersho et al. teach

plurality of voicing values {voice or unvoiced} are assigned to the voicing characteristics of the audio signal in said segments, and wherein said segmenting {partitioning} is

carried out based on the assigned voicing values (classifying a frame is being one of an unvoiced or voiced, col. 4, lines 52-53).

As to claim 9, Gersho et al. teach  
a value designated {classifying} to a voiced speech signal and another value designated to an unvoiced signal (classifying a frame is being one of an unvoiced or voiced, col. 4, lines 51-52).

As to claim 10 Gersho et al. teach  
A value designated {classifier} to a transitional stage between the voice and unvoiced {transitional} signals {frame} (classifier for classifying a transition frame, col. 4, lines 52-55).

As to claim 11, Gersho et al. teach  
a value designated {(m)=1} to an inactive period {silent frame} in the speech signal {speech} (If (m)=1, then the current frame is declared a silent frame, col. 15, lines 7-8 & 35-37).

As to claim 12, Gersho et al. teach  
selecting a quantization mode for said encoding in order to improve the bit allocation and to reduce the parameter update rate, wherein the segmenting step is carried out

based on the selected quantization mode (col. 3 lines 45-49; Fig. 5 and col. 11 lines 4-16; col. 4, lines 36-37, col. 15, lines 35-36 & col. 9, lines 63-65).

As to claim 13, Gersho et al. teach  
segmenting step is carried out based on target accuracy in reconstruction of the audio signal, wherein the target accuracy is selected based on distortion criteria comparing up-sampled quantized values (transmitted samples) and modified parameters (col. 9, lines 63-65 and col. 3 lines 45-49).

As to claim 14, Gersho et al. teach  
segmenting step is carried out for providing a linear pitch representation in at least some of said segments (col. 9, lines 63-65; col. 3 lines 45-49 and col. 4 lines 50-62).

As to claim 19 and 27, Gersho et al. (154) teach  
an input for receiving audio data indicative of the parameters in the adjusted representation (input applied to element 14, Fig. 3).  
and a module responsive to the audio data for generating the audio signal based on the adjusted signals and the characteristics of the audio signal (Fig. 3. One would necessarily need a module to respond to an adjusted audio signal/characteristics of audio signals).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to use a decoder in order to reverse the encoding data for further processing, such as modulating or storing the audio signal.

As to claim 20 and 28, Gersho et al. (154) does not teach recording parameters.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to record audio parameters in order to update the audio data for storage and retrieval.

As to claim 21 and 29,

Gersho et al. (154) teach.

the audio data is transmitted through a communication channel and wherein the input of the decoder is operatively connected to the communication channel for receiving the audio data (digital communications, col. 1, line 1 and Fig. 3).

As to claim 22, Gersho et al. (154) teach,

an input for receiving audio data indicative of the characteristics (encoder, Fig. 1, element 82); and

an adjustment module for adjusting a parameter based on the characteristics of the audio signal for providing an adjusted representation of a parameter, wherein said adjusting comprises the steps of segmenting the audio signal into a plurality of segments based on the characteristics of the audio signals and encoding the segments



based on one or more of a plurality of encoding settings (LP coding, modified residual, adjusts frames, Abstract and Fig. 9; col. 8 lines 54-63).

As to claim 23, Gersho et al. (154) teach,  
a quantization module responsive to the adjusted representation for coding the parameters in the adjusted representation (Fig. 9).

As to claim 24, Gersho et al. (154) teach,  
an output end operatively connected to a storage medium for providing data indicative of the coded parameters in the adjusted representation (stored as vectors in a codebook, col. 1, lines 64-65).

As to claim 25, Gersho et al. (154) teach,  
output end, operatively connected to a communication channel for providing signals indicative of the coded parameters in the adjusted representation to the communication channel for transmission (Fig. 8; a coder which necessarily has an output and ability to represent the adjusted audio parameters).

As to claim 26, Gersho et al. (154) teach,  
a code for determining the characteristics of the audio signal (LP coding, col. 8 lines 54-63)

a code for adjustment the parameter based on the characteristics of the audio signal for providing an adjusted representation of the parameter, wherein said adjusting comprises the steps of segmenting the audio signal into a plurality of segments based on the characteristics of the audio signals and encoding the segments based on one or more of a plurality of encoding settings (LP coding, modified residual, adjusts frames, Abstract and Fig. 9; col. 8 lines 54-63).

As to claim 30, Gersho et al. (154) teach  
a mobile terminal (mobile base station, col. 6, lines 17-18).

As to claim 31, Gersho et al. (154) teach,  
Implementing in a cell phone system which necessarily has both base station and mobile station adapted to communicating with the base stations (col. 6, lines 33-36).

a decoder for use in parametric audio coding for generating a synthesized audio signal indicative of an audio signal having audio characteristics, wherein the audio signal is coded in a coding step into a plurality of parameters at a data rate and the encoding step is adjusted based on the characteristics of the audio signal for providing an adjusted representation of the parameters, wherein the said adjusting comprises the steps of segmenting the audio signal into a plurality of segments based on the characteristics of the audio signals and encoding the segments based on one or more

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of a plurality of encoding settings (Figs 1, 4-5 , LP coding, modified residual, adjusts frames, Abstract and Fig. 9; col. 8 lines 54-63 ).

an input for receiving audio data indicative of the parameters in the adjusted representation from at least one of the base stations for providing the audio data to the decoder, so as to allow the decoder to generate the synthesized audio signal based on the adjusted representation (Figs 1, 4-5, col. 3 lines 1-15).

As to claim 32, Gersho et al. (154) teach,

a reconstruction module for reconstructing the audio segment based on the received audio data (decoder, Fig. 1).

a reconstruction module for reconstructing the audio segment based on the received audio data (Fig. 9; col. 6 lines 8-11).

As to claim 33, Gersho et al. (154) teach,

encoding settings inherently include bit allocation (col. 3 lines 45-49), quantization accuracy (Fig. 5 and col. 11 lines 4-16), quantization method (col. 11 lines 4-16) and parameter update rate (col. 3 lines 31-44 and 56-60).

As to claim 34, Gersho et al. (154) teach,

the audio signal contains sinusoidal components (col. 3 lines 25-29, analysis windows made equal becomes sine) and said parameters include frequency values

(Fig. 1 element 68), amplitude values (col. 3 lines 51-55) and phase values indicative of the sinusoidal components (Fig. 1 element 76 and col. 3 lines 25-29).

As to claim 35, Gersho et al. (154) teach, the parameters includes pitch (col. 4 line 60), voicing  $f$  (Fig. 9 element 42c), amplitude (col. 3 lines 51-55) and energy of the audio signal (col. 3 lines 42-44).

As to claim 36, Gersho et al. (154) teach, the parameters include pitch contour data (col. 4 line 60-61) containing a plurality of pitch values inherently representative of an audio segment in time (col. 4 lines 59-63 and col. 2 lines 51-64).

As to claim 37, Gersho et al. (154) teach, encoding settings inherently include bit allocation (col. 3 lines 45-49), quantization accuracy (Fig. 5 and col. 11 lines 4-16), quantization method (col. 11 lines 4-16) and parameter update rate (col. 3 lines 31-44 and 56-60, Fig. 4, 8-9 and 14).

As to claim 38, Gersho et al. (154) teach, encoding settings inherently include bit allocation (col. 3 lines 45-49), quantization accuracy (Fig. 5 and col. 11 lines 4-16), quantization method (col. 11 lines 4-16) and parameter update rate (col. 3 lines 31-44 and 56-60, and col. 3 lines 1-15).

As to claim 40, Gersho et al. (154) teach, encoding settings inherently include bit allocation (col. 3 lines 45-49), quantization accuracy (Fig. 5 and col. 11 lines 4-16), quantization method (col. 11 lines 4-16) and parameter update rate (col. 3 lines 31-44 and 56-60, col. 6 lines 8-11).

As to claim 41, Gersho et al. (154) teach, encoding settings inherently include bit allocation (col. 3 lines 45-49), quantization accuracy (Fig. 5 and col. 11 lines 4-16), quantization method (col. 11 lines 4-16) and parameter update rate (col. 3 lines 31-44 and 56-60, col. 6 lines 33-40).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gersho et al. (6,311,154) as applied to claim 1 above, and further in view of Gersho (IEEE-96).

As to claim 15, Gersho et al. (154) teach

Forming a parameter signal based on the audio signal data {speech} data having a first number (speech, col. 15, lines 1-20).

Gersho et al. (154) do not explicitly teach down-sampling.

However, Gersho (IEEE-96) teach down-sampling the parameter signal to a second number of a signal for providing a further parameter signal, wherein the second number is necessarily smaller then the first number (down-sampling, page 905, right col., paragraph 1. down-sampling necessarily having a smaller number then the first; second number would necessarily be smaller then the first because it is being counted backwards or decremented, starting with the last number first, in a down-sampling process or when up-sampling wherein the third sample is greater then the second, which is another example of the down-sample in reverse).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to down-sample the encoded speech signal, in order to reduce sampling rate, thus providing a large complexity reduction, as taught by Gersho (IEEE-96), page 905, right col., paragraph 1.

Neither Gersho et al. (154) nor Gersho (IEEE-96) explicitly teach up-sampling.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to up-sample the encoded speech signal for decoding, and necessarily the third number is equal to or greater then the first number, in order to restore the original parameters for decoding.

As to claim 16, Gersho et al. (154) teach the third number is equal to the first number (col. 12 lines 45-51; delay estimates are necessarily going to allow a third number to be equal to the first).

As to claim 17, Gersho et al. (154) teach the signal data {speech} comprise quantized {two bits per frame} parameters (linear prediction parameters, col. 8, lines 57-58 & col. 9, line 65. Two bits per frame is used to identify the class/parameters of the speech signal, such as 00, 01, etc.).

As to claim 18, Gersho et al. (154) teach signal data comprises un-quantized {un-quantized linear prediction} parameters (parameters, col. 15, lines 14).

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Myriam Pierre whose telephone number is 571-272-7611. The examiner can normally be reached on Monday - Friday from 5:30 a.m. - 2:00p.m.

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information as to the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

08/26/2005 MP

  
RICHEMOND DORVIL  
SUPERVISORY PATENT EXAMINER